

## Patent claims:

1. A moldable-foam molding whose density is in the range from 8 to 100 g/l, obtainable via fusion of prefoamed foam beads composed of expandable, pelletized thermoplastic polymer materials, comprising
- from 50 to 90% by weight of polystyrene B), selected from free-radical-polymerized glass-clear polystyrene (GPPS) or anionically polymerized polystyrene (APS),
- and
- from 10 to 50% by weight of styrene copolymer A), selected from styrene-butadiene block copolymer, styrene- $\alpha$ -methylstyrene copolymer, acrylonitrile-butadiene-styrene (ABS), styrene-acrylonitrile (SAN), acrylonitrile-styrene-acrylate (ASA), methacrylate-butadiene-styrene (MBS), and methyl methacrylate-acrylonitrile-butadiene-styrene (MABS) polymers.
2. The moldable-foam molding according to claim 1, wherein at least 80% of the cells of the individual foam beads are of closed-cell type.
3. An expandable, pelletized thermoplastic polymer material which comprises
- from 50 to 90% by weight of polystyrene B), selected from free-radical-polymerized glass-clear polystyrene (GPPS) or anionically polymerized polystyrene (APS),
- and
- from 10 to 50% by weight of styrene copolymer A), selected from styrene-butadiene block copolymer, styrene- $\alpha$ -methylstyrene copolymer, acrylonitrile-butadiene-styrene (ABS), styrene-acrylonitrile (SAN), acrylonitrile-styrene-acrylate (ASA), methacrylate-butadiene-styrene (MBS), and methyl methacrylate-acrylonitrile-butadiene-styrene (MABS) polymers.
4. The expandable, pelletized thermoplastic polymer material according to claim 3, which comprises from 3 to 7% by weight of an organic blowing agent.
5. A process for preparing expandable, pelletized thermoplastic polymer materials according to claim 3, encompassing the steps of
- a) preparing a mixture from
- from 50 to 90% by weight of polystyrene B), selected from free-radical-polymerized glass-clear polystyrene (GPPS) or anionically polymerized polystyrene (APS),

- and  
from 10 to 50% by weight of styrene copolymer A), selected from styrene-butadiene block copolymer, styrene- $\alpha$ -methylstyrene copolymer, acrylonitrile-butadiene-styrene (ABS), styrene-acrylonitrile (SAN),  
5 acrylonitrile-styrene-acrylate (ASA), methacrylate-butadiene-styrene (MBS), and methyl methacrylate-acrylonitrile-butadiene-styrene (MABS) polymers.
- b) using a static or dynamic mixer at a temperature of at least 150°C to incorporate an organic blowing agent into the polymer melt,  
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- c) cooling the polymer melt comprising blowing agents to a temperature of at least 120°C,
- d) discharge via a die with holes whose diameter at the discharge from the die is at most 1.5 mm, and  
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- e) pelletizing the melt comprising blowing agent directly downstream of the die plate under water at a pressure in the range from 1 to 20 bar.
- 20 6. A process for producing moldable-foam moldings, according to claim 1, wherein hot air or steam is used in a first step to prefoam expandable, pelletized thermoplastic polymer materials according to claim 3 to give foam beads whose density is in the range from 8 to 100 g/l, and, in a second step, these are fused in a closed mold.